

MISCELLANEOUS NOTES ON AUSTRALIAN DIPTERA. XV.

TABANUS, HETEROPSILOPUS.

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Synopsis.

In family Tabanidae two new synonyms are given for *Tabanus imperfectus* Walker, and the characters are discussed. In Dolichopodidae, a key is given for the genus *Heteropsilopus* and new synonymy is recorded.

Genus TABANUS, subgen. DOLICHAPHA Enderlein.

Hardy, 1948, *Proc. Roy. Soc. Queensland*, 59: 169-178.

The subgenus is defined in the above reference, and it covers the *Tabanus circumdatus*-complex and the closely allied *imperfectus*-complex, both of which have become so involved in literature that no author seems to have a clear understanding of the components. The typical *circumdatus* form is light brown, and the typical *imperfectus* form is blackish, but varying in the amount of lighter brown which is more or less confined to the base of the abdomen. Specimens in collections show a wide range between these colours and, as shown below, the shape of the frontal callus cannot be considered fully reliable for specific identification.

There seems to be no hope of disentangling the confusion brought about in these species without field experience, and the collection from each type locality of sufficient specimens to cover all variations that may occur there, for study whilst in a fresh condition. Especially is the male required, from which sex has to be established the specific status in each locality. I anticipate that the species passing under the name *imperfectus* in Tasmania, which has no enlargement of facets in the eye of the male, will be found to differ from the mainland form which apparently has enlarged facets, but this character may be subspecific in status.

TABANUS IMPERFECTUS Walker.

- T. imperfectus* Walker, 1848, *List Dipt. Brit. Mus.*, 1: 179.—Ricardo, 1915, *Ann. Mag. Nat. Hist.*, (8) 16: 278.—? White, 1915, *Proc. Roy. Soc. Tasmania*, 11.
T. dubiosus Ricardo, 1915, *Ann. Mag. Nat. Hist.*, (8) 16: 284 (*dubiosa* in error).
T. indefinitus Taylor, 1918, *Rec. Austr. Mus.*, 12: 68.

Synonymy.—Walker's type of *imperfectus* was described by Ricardo as having an enlarged callus taking up "the whole of the anterior half of the forehead" and no extension of the callus was seen by her. She records it from New South Wales.

T. dubiosus Ricardo, based on Queensland specimens, at the same time recorded from Katoomba, New South Wales, is said to have the callus almost reaching the eyes, oblong, the linear extension ending in a point.

T. indefinitus Taylor, also from the Blue Mountain area, is said to have its callus as wide as the frons and with a short extension. The type shows the callus agreeing with the description, and yet corresponding with two specimens from Katoomba the callus of which is open to varied interpretations explained below. In Australian collections specimens standing under the three names are certainly one species.

These two Katoomba specimens were caught early in November, 1949, and, although not long emerged, already had their frons abraded, being bare of vestiture over a wide area. The apparent callus is therefore large, somewhat gothic-arched in shape, ending in a point two-thirds towards the summit. The lower half of the frons is almost completely occupied by this pseudocallus and the arching extension is in no way divided from it. When judged to be abraded, and seeking the true outline, one can

imagine a slender process arising from a practically eye-to-eye oblong callus, or even an oblong without a process. Even this may be reduced to a squarish or roundish object, well separated from the eyes, a view justified by the evident but very minute hair-pits scattered over the surrounding area.

After collecting various extra specimens at Katoomba, and after re-examining the material used by Taylor, I considered that both Ricardo and Taylor were deceived by appearances, due to the condition of the specimens they studied, all specimens from the Blue Mountain area being but one species.

T. imperfectus White, described from Mangalore, Tasmania, shows a wide variety of pseudocalli on specimens available for study, but it is doubtful if it be truly conspecific with the mainland form.

Characters.—A dark, hairy-eyed species, with the apical markings of each segment ashy-white, faintly yellowish at times, the colour merging into a central white spot on a blackish-brown abdomen; the sides of the first two segments are often lighter brown. The true callus is probably small, well separated from the eyes, but the frons becomes so readily denuded that the callus becomes ill-defined and it is not known if a true extension occurs. Minute hair-pits scattered over the surface will denote that abrasion has taken place, forming a pseudocallus. The vestiture of the frons is mainly dark greyish with some brown staining over the central area. Apparently on specimens that are old when caught, the frons slightly collapses, becoming parallel sided, but normally the frons widens slightly towards the antennae.

Remarks.—Taylor refers to golden hairs in the abdominal spots and margins. These are slightly yellowish on his type, so I presume Taylor examined them under artificial light to see them as golden.

Hab.—In literature the species is recorded from Queensland to Tasmania. It occurs at Katoomba, New South Wales, rather sparingly, specimens being taken from November, 1949, through the summer months, but only 14 were captured over the period. In the summer 1950–51 only three were seen. The collecting area is around a swamp on Katoomba Creek, which supports *Scaptia auriflua* Don., *S. patula* Walk. and *S. brevicornis* Macq., all in small numbers, but no male of a *Tabanus* was seen there. Another *Tabanus* occurs and seems to be a rare undescribed species of subgenus *Cydistomyia*.

Genus HETEROPSILOPUS Bigot, 1859.

The limits of the genus are not certainly known. *Chrysosoma interruptum* Becker and *C. caelicum* Parent, differing only in having the third antennal segment at least one and a half times longer than broad and with a terminally placed arista, probably belong here, but the following key contains only those with typical antennae.

Key to species of genus Heteropsilopus.

1. Anterior tarsi combined are $2\frac{1}{2}$ times longer than the tibia *jacquelinei* Parent.
Anterior tarsi combined are less than twice the length of the tibiae 2
2. First posterior tarsus as long as the four following segments combined 3
First posterior tarsus shorter 4
3. Abdomen rarely with yellow above, then limited to the anterior margins of the first two segments. Male with intermediate tarsi fringed with hook-shaped cilia
..... *cingulipes* Walker.
Abdomen with conspicuous yellow parts at least basally. Male with a cuticular apical spur on the first segment of the intermediate tarsus *brevicornis* Macquart.
4. First posterior tarsus as long as the three following segments combined. Anterior tarsi combined only $1\frac{1}{2}$ the length of tibia. Male intermediate tarsi with the two apical segments peculiarly formed *ingenuus* Erichson.
First posterior tarsus as long as the two following segments combined. Anterior tarsi combined $1\frac{1}{2}$ length of tibia. Male with a broadened fifth segment on the intermediate tarsi *trifasciatus* Macq.

In this key the proportional lengths of tarsal segments are those given in descriptions, but slight variations may be found on specimens from different regions. It has yet to be shown that the two names in couplet 4 are not based on the one species,

HETEROPSILOPUS CINGULIPES Walker.

Psilopus cingulipes Walker, *Ent. Mag.*, 2, 1835: 472.—*Sciapus plumifera* Becker, *Cap. Zool.*, 1, 1922: 206.

Synonymy.—That Becker's species should prove conspecific with that of Walker is quite unexpected, but the evidence is based on field observations, leaving no doubt concerning this synonymy. Collecting around my laboratory at Katoomba, I found not only were the two forms present, but also during the latter half of December all grades between them in colour variations were present. The species occurred in enormous numbers, persisting through the summer in diminishing quantities.

In various collections, where specimens come from mainly low-land areas, the dominant type is the clear winged *cingulipes*, but the dark winged form also occurs there. From the Blue Mountains come (a) specimens with wings clear and faintly marked; (b) two bands formed but isolated from the costa, and these bands when interrupted centrally may become four spots on the wing; (c) the two bands, though reaching the costa, do not join together, varying to join together as in Becker's illustration. The third band, which is normally small and interrupted, also varies in density of colour and in the amount of area covered.

Other parts are similarly variable, the anterior coxae varying from pale yellow, almost white, to intensely yellow, and usually they are fuscous coloured on the anterior side. The abdomen may be entirely metallic, varying to mainly yellow below, this yellow spreading above along the anterior border of the first two segments.

In December, 1950, five specimens with lightly marked wings were kept, each in a separate glass tube; one died, the other four had developed full and dense colour markings five days afterwards.

On this evidence it would seem that the synonymy given by me in 1935 is mainly correct, the exception being that doubtfully placed *Chrysosoma metallicum* Parent, 1932, a female now removed. Some mainland specimens have been referred to as *trifasciatus* Macq. and most of these are *H. ingenuus* Erich., but probably some belong to the present species, the two being very alike in characters.

Characters.—On the male the intermediate tarsi contain easily overlooked cilia, forming a row of bent-over, hook-shaped hairs, about 20 of these hairs to the millimetre. The row forms a fringe reaching the tibia, on which it tapers out by narrowing down to very small hairs. Other characters are given in the key.

Notes.—On the above evidence it may be assumed that other species are similarly variable in coloration to a greater or less extent and that these variations are found mainly during the early part of the season in which they occur. There are apparent trends to regional variations which also must be taken into account.

HETEROPSILOPUS TRIFASCIATUS Macquart.

Psilopus trifasciatus Macquart, 1849.—*Chrysosoma metallicum* Parent, 1932.

Synonymy.—Macquart's type, redescribed by Parent as having the first segment of the posterior tarsi equal to the length of the two following segments combined, conforms to *C. metallicum*, which feature suggests the above synonymy. The type of the latter is a female, whereas Macquart's type is a male, of which Parent gives the tarsal drawing that does not conform with *H. ingenuus* Erich., and is perhaps due to slight damage.

Hab.—Macquart gives Tasmania as type locality in his fourth supplement, but Sydney is likely to be the true locality.

HETEROPSILOPUS INGENUUS Erichson.

Psilopus ingenuus Erichson, 1842.—*Scapius chalcus* White, 1916.

Synonymy.—The type of *chalcus*, a female specimen, may be the present species with duller colour and less wing marking than is normally found. It was captured early in the season.

Characters.—On the male the apical segments of the intermediate tarsi are peculiarly formed, the shape being illustrated by Parent under the name *gloriosus*,

which is a synonym. The smaller size and the extension of the apical band along the costa to the wing tip (as illustrated for *trifasciatus* by Macquart) will serve to distinguish the form from *cingulipes*.

Hab.—The species is definitely known from Tasmania, Victoria, and the Blue Mountains of New South Wales. It was found in moderate number at Katoomba in December, 1950, but became scarce in the following month. One specimen had as prey a species of *Simulium*.

HETEROPSILOPUS BREVICORNIS Macquart.

Synonymy.—Parent's remarks about the type state that the middle tarsi are not ornamented, and this was supplemented later in a letter which stated that he could not dissociate the name from the present form. There is need for more clarity in references, but it seems that *Scapius chalcus* White, 1916, must be removed from the synonymy.

HETEROPSILOPUS JACQUELINEI Parent.

Sciopus jacquelinei Parent, *Ann. Soc. Sci. Bruxelles*, (B) 52, 1932: 169.

Characters.—Presumably the intermediate tarsi are simple on the male, the first segment being described as one and a half times the length of the following segments combined. The description was based on a unique male from Canberra and has not been recognized in collections available to me.
